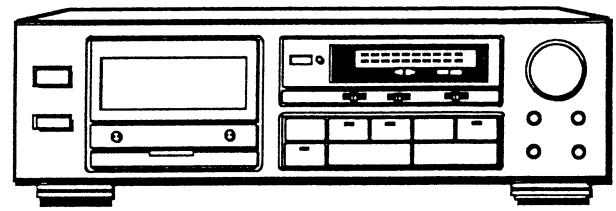
S/M Code No.91 – 026 DATE OF ISSUE 6/1991 – T

AIWA®

AD-R507
AD-F410

SERVICE MANUAL



STEREO CASSETTE DECK

• BASIC TAPE MECHANISM : α – 14

• TYPE. U (R507)
H,E,K,Z (F410)

AIWA Co., Ltd.

Tokyo Japan

Printed in Japan

SPECIFICATIONS

AD-R507

Type	Stereo cassette tape deck
Track format	4 tracks, 2 channels
Power supply	AC 120 V, 60 Hz
Power consumption	12 W
Frequency response	METAL tape: 20–18,000 Hz CrO_2 tape: 20–17,000 Hz NORMAL tape: 20–16,000 Hz
Signal-to-noise ratio	73 dB (METAL tape DOLBY C NR ON above 5 kHz)
Wow and flutter	0.065% (WRMS) 0.18% (according to DIN 45500)
Tape speed	4.8 cm/sec. ($1\frac{7}{8}$ ips)
Recording system	AC bias (frequency 85 kHz)
Erase system	AC erase
Motor	DC servomotor (1)
Heads	Record/playback head (1) Erase head (1) (Double-gap ferite head)
Inputs	REC/LINE IN maximum input sensitivity: 50 mV (47 kΩ)
Outputs	PLAY/LINE OUT standard output level: 350 mV (0 VU); suitable load impedance: over 47 kΩ PHONES: 0.14 mW (32Ω)
Dimensions	430(W) × 133(H) × 269(D) mm 17 (W) × $5\frac{1}{4}$ (H) × $10\frac{5}{8}$ (D) inches
Weight	3.9 kg 8.58 lbs.

AD-F410

Type	Stereo cassette tape deck
Track format	4 tracks, 2 channels
Power supply	AD-F410E, Z AC 220 V, 50 Hz AD-F410K AC 240V, 50 Hz AD-F410H AC 110–120 V/220–240 V switchable, 50/60 Hz
Power consumption	12 W
Frequency response	METAL tape: 20–20,000 Hz CrO_2 tape: 20–18,000 Hz NORMAL tape: 20–17,000 Hz
Signal-to-noise ratio	73 dB (METAL tape DOLBY C NR ON above 5 kHz)
Wow and flutter	0.065% (WRMS) 0.18% (according to DIN 45500)
Tape speed	4.8 cm/sec. ($1\frac{7}{8}$ ips)
Recording system	AC bias (frequency 85 kHz)
Erase system	AC erase
Motor	DC servomotor (1)
Heads	Record/playback head (1) (PC-OCC super DX head) Erase head (1) (Double-gap ferite head)
Inputs	REC/LINE IN maximum input sensitivity: 50 mV (47 kΩ) DIN max sensitivity (Z model only): 0.1 mV/kΩ (3.3 kΩ)
Outputs	PLAY/LINE OUT standard output level: 350 mV (0 VU); suitable load impedance: over 47 kΩ DIN standard level (Z model only): 0.3 V (0 VU) PHONES: 0.14 mW (32Ω)
Dimensions	430(W) × 133(H) × 269(D) mm 17 (W) × $5\frac{1}{4}$ (H) × $10\frac{5}{8}$ (D) inches
Weight	3.9 kg 8.6 lbs

• Design and specifications are subject to change without notice.

- Dolby noise reduction and HX Pro headroom extension manufactured under license from Dolby Laboratories Licensing Corporation. HX Pro originated by Bang & Olufsen.
- "DOLBY", the double-D symbol ▯▯, and "HX PRO" are trademarks of Dolby Laboratories Licensing Corporation.

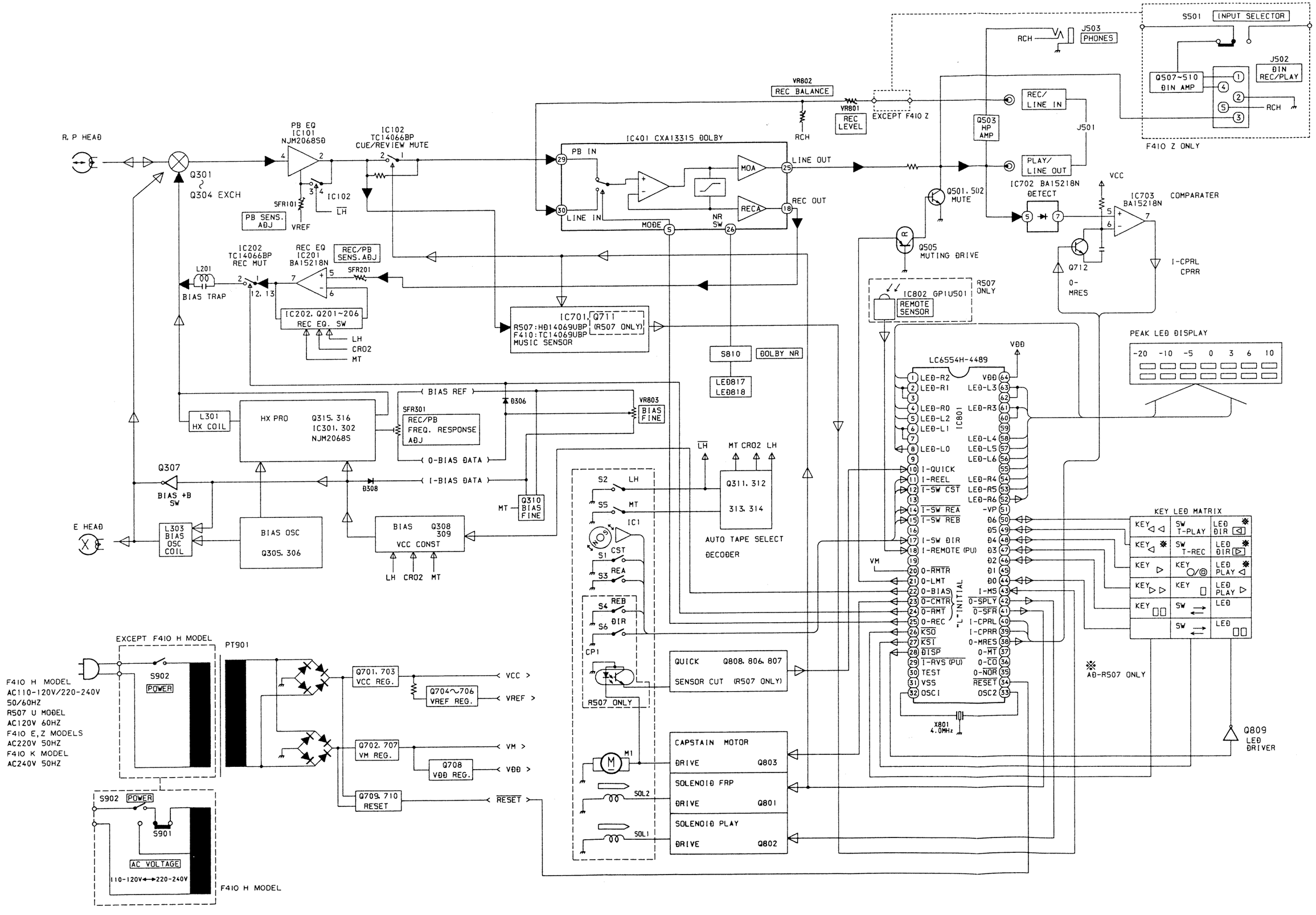
ELECTRICAL MAIN PARTS LIST

REF. NO.	PART NO.	DESCRIPTION
===IC===		
	87-001-440-019	IC, BA15218N
	87-001-983-010	IC, CXA1331S
	87-001-533-010	IC, GP1U501(REMOTE SENSOR)(R507)
	87-020-312-019	IC, HD14069UBP(R507)
	80-DS4-619-010	IC, LC6554H-4489
	87-020-758-019	IC, NJM2068SD
	87-020-680-019	IC, NJM2068S
	87-027-656-019	IC, TC4066BP
	87-027-827-019	IC, TC4069UBP(F410)
===TRANSISTOR===		
	89-503-735-019	FET, 2SK373GR
	89-110-155-019	TRANSISTOR, 2SA1015GR
	89-112-965-019	TRANSISTOR, 2SA1296GR
	87-026-463-019	TRANSISTOR, 2SA933S RS
	89-109-521-019	TRANSISTOR, 2SA952K
	89-213-292-019	TRANSISTOR, 2SB1329Q
	89-213-702-019	TRANSISTOR, 2SB1370E
	87-026-462-019	TRANSISTOR, 2SC1740S RS
	89-318-156-019	TRANSISTOR, 2SC1815BL
	89-318-155-019	TRANSISTOR, 2SC1815GR
	89-320-011-019	TRANSISTOR, 2SC2001K
	89-331-130-019	TRANSISTOR, 2SC3113
	87-026-214-019	TRANSISTOR, DTA114YS
	87-026-219-019	TRANSISTOR, DTA144ES
	87-026-245-019	TRANSISTOR, DTC114ES
	87-026-218-019	TRANSISTOR, DTC144ES
===DIODE===		
	87-001-783-019	DIODE, 1N4002-T
	87-001-559-019	DIODE, 1SS131
	87-020-465-019	DIODE, 1SS133
	87-020-123-019	DIODE, DS446-AT
	87-027-301-019	DIODE, ZENER HZ3A1
	87-002-219-010	DIODE, ZENER UTZJ11B
	87-001-912-019	DIODE, ZENER UTZJ5.1B
	87-001-913-019	DIODE, ZENER UTZJ5.6B
===MAIN CIRCUIT BOARD SECTION===		
C101	★87-018-122-019	CAP, CERA-SOL U 180P-50 B
C102	★87-018-122-019	CAP, CERA-SOL U 180P-50 B
C107	★87-010-404-019	CAP, ELECT 4.7-50 SME(R507)
C108	★87-010-404-019	CAP, ELECT 4.7-50 SME(R507)
C109	★87-010-404-019	CAP, ELECT 4.7-50 SME(R507)
C110	★87-010-404-019	CAP, ELECT 4.7-50 SME(R507)
C111	★87-010-979-010	CAP, ELECT 2.2-50 BP-ES(F410)
C112	★87-010-979-010	CAP, ELECT 2.2-50 BP-ES(F410)
C113	★87-018-134-019	CAP, CERA-SOL U 0.01-16 Y
C114	★87-018-134-019	CAP, CERA-SOL U 0.01-16 Y
C201	★87-018-121-019	CAP, CERA-SOL U 150P-50 B
C202	★87-018-121-019	CAP, CERA-SOL U 150P-50 B
C203	★87-018-132-019	CAP, CERA-SOL U 2200P-16 X
C204	★87-018-132-019	CAP, CERA-SOL U 2200P-16 X
C205	★87-010-404-019	CAP, ELECT 4.7-50 SME
C206	★87-010-404-019	CAP, ELECT 4.7-50 SME
C209	★87-010-544-019	CAP, ELECT 0.1-50V(F410)
C209	★87-010-545-019	CAP, ELECT 0.22-50 SME(R507)
C210	★87-010-544-019	CAP, ELECT 0.1-50V(F410)
C210	★87-010-545-019	CAP, ELECT 0.22-50 SME(R507)
C211	★87-018-134-019	CAP, CERA-SOL U 0.01-16 Y(R507)
C211	★87-018-201-019	CAP, CERA-SOL U 5600P-16 X(F410)
C212	★87-018-134-019	CAP, CERA-SOL U 0.01-16 Y(R507)
C212	★87-018-201-019	CAP, CERA-SOL U 5600P-16 X(F410)
C301	★87-018-121-019	CAP, CERA-SOL U 150P-50 B
C302	★87-018-121-019	CAP, CERA-SOL U 150P-50 B
C303	★87-018-123-019	CAP, CERA-SOL U 220P-50 B
C304	★87-018-123-019	CAP, CERA-SOL U 220P-50 B
C307	★87-018-126-019	CAP, CERA-SOL U 390P-50 B
C308	★87-018-126-019	CAP, CERA-SOL U 390P-50 B
C315	★87-018-131-019	CAP, CERA-SOL U 1000P-50 B
C316	★87-018-131-019	CAP, CERA-SOL U 1000P-50 B
C317	★87-010-401-019	CAP, ELECT 1-50 SME
C318	★87-010-263-019	CAP, ELECT 100-10
C319	★87-010-382-019	CAP, ELECT 22-25 SME
C320	★87-018-131-019	CAP, CERA-SOL U 1000P-50 B
C321	★87-014-081-019	CAP, PP 0.01(R507)
C321	★87-014-212-019	CAP, PP 0.015(F410)
C324	★87-018-201-019	CAP, CERA-SOL U 5600P-16 X
C326	★87-010-382-019	CAP, ELECT 22-25 SME
C327	★87-010-403-019	CAP, ELECT 3.3-50 SME
C401	★87-018-133-019	CAP, CERA-SOL U 4700P-16 X
C402	★87-018-133-019	CAP, CERA-SOL U 4700P-16 X
C403	★87-018-119-019	CAP, CERA-SOL U 100P-50 B
C404	★87-018-119-019	CAP, CERA-SOL U 100P-50 B
C405	★87-010-404-019	CAP, ELECT 4.7-50 SME
C406	★87-010-404-019	CAP, ELECT 4.7-50 SME
C411	★87-010-826-019	CAP, ELECT 0.56-50 VX
C412	★87-010-826-019	CAP, ELECT 0.56-50 VX
C413	★87-010-546-019	CAP, ELECT 0.33-50 SME
C414	★87-010-546-019	CAP, ELECT 0.33-50 SME
C415	★87-010-401-019	CAP, ELECT 1-50 SME
C416	★87-010-401-019	CAP, ELECT 1-50 SME
C417	★87-010-263-019	CAP, ELECT 100-10
C418	★87-010-382-019	CAP, ELECT 22-25 SME(R507)
C501	★87-010-401-019	CAP, ELECT 1-50 SME
C502	★87-010-401-019	CAP, ELECT 1-50 SME
C503	★87-010-263-019	CAP, ELECT 100-10
C504	★87-010-263-019	CAP, ELECT 100-10
C505	★87-010-263-019	CAP, ELECT 100-10
C506	★87-010-235-019	CAP, ELECT 470-16 SME(F410, Z)
C507	★87-018-149-019	CAP, CERA-SOL U 15P-50 CH(F410, Z)
C508	★87-018-149-019	CAP, CERA-SOL U 15P-50 CH(F410, Z)
C509	★87-018-127-019	CAP, CERA-SOL U 470P-50 B(F410, Z)
C510	★87-018-127-019	CAP, CERA-SOL U 470P-50 B(F410, Z)
C511	★87-010-401-019	CAP, ELECT 1-50 SME(F410, Z)
C512	★87-010-401-019	CAP, ELECT 1-50 SME(F410, Z)
C513	★87-018-127-019	CAP, CERA-SOL U 470P-50 B(F410, Z)
C514	★87-018-127-019	CAP, CERA-SOL U 470P-50 B(F410, Z)
C515	★87-010-546-019	CAP, ELECT 0.33-50 SME(F410, Z)
C516	★87-010-546-019	CAP, ELECT 0.33-50 SME(F410, Z)
C517	★87-010-546-019	CAP, ELECT 0.33-50 SME
C518	★87-010-546-019	CAP, ELECT 0.33-50 SME
C519	★87-018-134-019	CAP, CERA-SOL U 0.01-16 Y
C701	★87-010-388-019	CAP, ELECT 1000-25 SME
C702	★87-010-389-019	CAP, ELECT 2200-25V SME
C703	★87-010-382-019	CAP, ELECT 22-25 SME
C704	★87-010-235-019	CAP, ELECT 470-16 SME(R507)
C704	★87-010-381-019	CAP, ELECT 330-16 SME(F410)
C705	★87-010-221-019	CAP, ELECT 470-10
C706	★87-010-221-019	CAP, ELECT 470-10
C707	★87-010-382-019	CAP, ELECT 22-25 SME
C708	★87-010-546-019	CAP, ELECT 0.33-50 SME
C709	★87-010-404-019	CAP, ELECT 4.7-50 SME
C710	★87-018-134-019	CAP, CERA-SOL U 0.01-16 Y
C711	★87-018-100-019	CAP, CERA-SOL U 4.7P-50 SL
C712	★87-018-131-019	CAP, CERA-SOL U 1000P-50 B
C713	★87-018-205-019	CAP, CERA-SOL U 0.022-25 F(R507)
C714	★87-018-119-019	CAP, CERA-SOL U 100P-50 B
C715	★87-010-401-019	CAP, ELECT 1-50 SME
C716	★87-010-382-019	CAP, ELECT 22-25 SME
C717	★87-010-546-019	CAP, ELECT 0.33-50 SME(R507)
C718	★87-010-546-019	CAP, ELECT 0.33-50 SME(R507)
C719	★87-010-404-019	CAP, ELECT 4.7-50 SME
C720	★87-010-404-019	CAP, ELECT 4.7-50 SME
C721	★87-010-263-019	CAP, ELECT 100-10

REF. NO.	PART NO.	DESCRIPTION
C722	★87-010-382-019	CAP, ELECT 22-25 SME
J501	87-049-868-019	JACK, PIN 4P(REC/LINE IN) (PLAY/LINE OUT)
J502	87-009-026-019	JACK, DIN 5P(DIN REC←→PLAY) (F410, Z)
J503	87-009-043-019	JACK, 6.3(PHONES)
L201	★82-231-622-010	COIL, 22MMH-J
L202	★82-231-622-010	COIL, 22MMH-J
L203	★82-194-634-010	COIL, 10MMH
L204	★82-194-634-010	COIL, 10MMH
L301	★80-DS6-618-010	COIL, HX 85K-6(F410)
L301	★80-DS4-618-010	COIL, HX85K-4(R507)
L302	★80-DS6-618-010	COIL, HX 85K-6(F410)
L302	★80-DS4-618-010	COIL, HX85K-4(R507)
L303	★80-DS6-617-010	COIL, OSC 85K-6(F410)
L303	★80-DS4-617-010	COIL, OSC 84K-4(R507)
L401	★80-DS4-620-010	FILTER, DOLBY 85K
L402	★80-DS4-620-010	FILTER, DOLBY 85K
S501	87-031-752-019	SLIDE SW(INPUT SELECTOR)(F410, Z)
SFR101	★87-024-168-019	SFR, 1K
SFR102	★87-024-168-019	SFR, 1K
SFR201	★87-024-172-019	SFR, 10K
SFR202	★87-024-172-019	SFR, 10K
SFR301	★87-024-176-019	SFR, 100K(R507)
SFR301	★87-024-177-019	SFR, 220K(F410)
SFR302	★87-024-176-019	SFR, 100K(R507)
SFR302	★87-024-177-019	SFR, 220K(F410)
		===FRONT CIRCUIT BOARD SECTION===
C801	★87-010-235-019	CAP, ELECT 470-16 SME
C802	★87-018-205-019	CAP, CERA-SOL U 0.022-25 F
C803	★87-010-235-019	CAP, ELECT 470-16 SME
C804	★87-018-205-019	CAP, CERA-SOL U 0.022-25 F
C805	★87-015-682-019	CAP, ELECT 22-16 7L(R507)
C806	★87-015-696-019	CAP, ELECT 2.2-50 7L(R507)
C807	★87-010-382-019	CAP, ELECT 22-25 SME
C808	★87-018-131-019	CAP, CERA-SOL U 1000P-50 B
LED801	82-238-621-019	LED, SLB-25MG 70F120(- ∞)
LED802	82-238-621-019	LED, SLB-25MG 70F120(- ∞)
LED803	82-238-621-019	LED, SLB-25MG 70F120(-20)
LED804	82-238-621-019	LED, SLB-25MG 70F120(-20)
LED805	82-238-621-019	LED, SLB-25MG 70F120(-10)
LED806	82-238-621-019	LED, SLB-25MG 70F120(-10)
LED807	82-238-621-019	LED, SLB-25MG 70F120(-5)
LED808	82-238-621-019	LED, SLB-25MG 70F120(-5)
LED809	82-238-621-019	LED, SLB-25MG 70F120(0)
LED810	82-238-621-019	LED, SLB-25MG 70F120(0)
LED811	82-238-622-019	LED, SLB-25VR 70F120(□□ 3)
LED812	82-238-622-019	LED, SLB-25VR 70F120(□□ 3)
LED813	82-238-622-019	LED, SLB-25VR 70F120(6)
LED814	82-238-622-019	LED, SLB-25VR 70F120(6)
LED815	82-238-622-019	LED, SLB-25VR 70F120(10)
LED816	82-238-622-019	LED, SLB-25VR 70F120(10)
LED817	80-DW1-631-019	LED, SLB55 MG70F120(DOLBY NR B)
LED818	80-DW1-632-019	LED, SLB55 VR70F120(DOLBY NR C)
LED819	80-DW1-631-019	LED, SLB55 MG70F120(◀)(R507)
LED820	80-DW1-631-019	LED, SLB55 MG70F120(▶)(R507)
LED821	82-234-606-019	LED, SLZ381C50 G L105(◀REV)(R507)
LED822	82-234-606-019	LED, SLZ381C50 G L105(FWD▶)(R507) (▶PLAY)(F410)
LED823	82-234-620-019	LED, SLZ981C50 R L105 (●REC/⊙REC MUTE)
LED824	82-234-607-019	LED, SLZ481C50 Y L105(❚❚PAUSE)
R877	87-025-468-019	RES, NF 1.5 1/4W
S801	87-036-170-019	TACT SW(◀◀MS)
S802	87-036-170-019	TACT SW(◀REV)(R507)
S803	87-036-170-019	TACT SW(FWD▶)(R507) (▶PLAY)(F410)

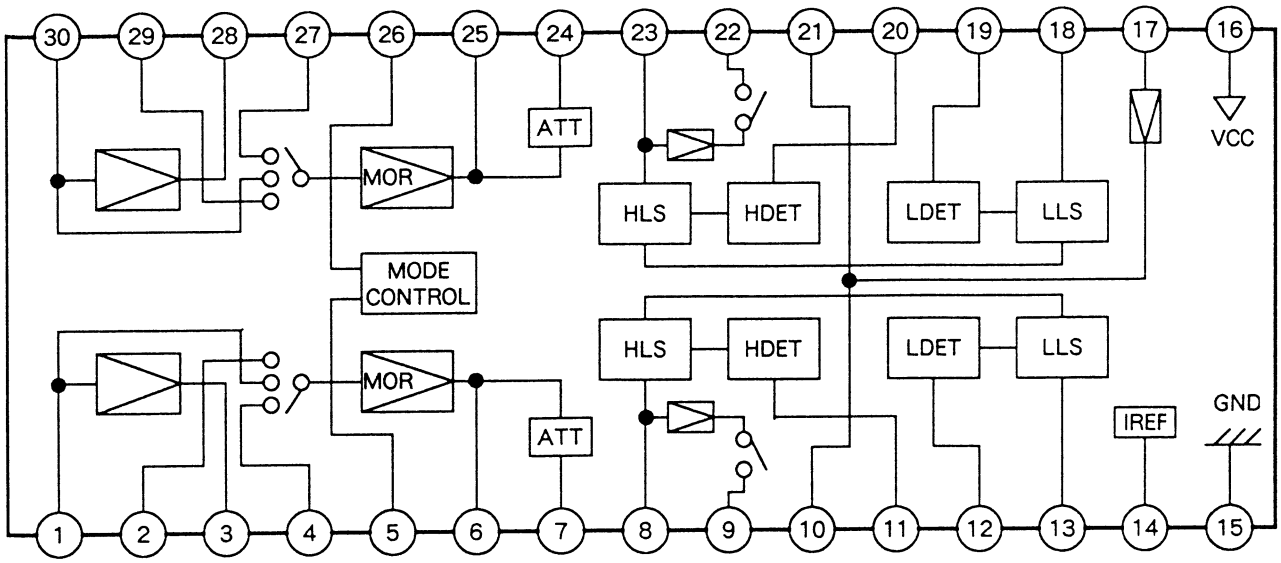
REF. NO.	PART NO.	DESCRIPTION
S804	87-036-170-019	TACT SW(MS▶▶)
S805	87-036-170-019	TACT SW(❚❚PAUSE)
S806	87-036-170-019	TACT SW(●REC/⊙REC MUTE)
S807	87-036-170-019	TACT SW(■STOP)
S808	87-036-208-019	SLIDE SW(TIMER)
S809	87-036-208-019	SLIDE SW(REVERSE MODE)(R507)
S810	87-036-135-019	SLIDE SW(DOLBY NR)
VR801	84-794-621-019	VR, 50KA(REC LEVEL)
VR802	84-794-622-019	VR, 200KW(REC BALANCE)
VR803	80-DS4-616-019	VR, 10KB(BIAS FINE)
X801	★87-030-167-019	RESONATER, CERAMIC CST 4.0MHZ
		===POWER CIRCUIT BOARD SECTION===
⚠PT901	80-DS4-613-019	POWER TRANSFORMER E (F410, E, Z)
⚠PT901	80-DS4-611-019	POWER TRANSFORMER H (F410, H)
⚠PT901	80-DS4-614-019	POWER TRANSFORMER K (F410, K)
⚠PT901	80-DS4-612-019	POWER TRANSFORMER U, C(R507, U)
⚠S901	87-031-780-019	SLIDE SW(AC VOLTAGE)(F410, H)
		===POWER SW CIRCUIT BOARD SECTION===
⚠C901	87-019-113-019	CAP, FILM 0.0022E
⚠S902	87-036-184-019	PUSH SW(POWER)
		===DECK CIRCUIT BOARD SECTION===
M1	87-045-296-019	MOTOR, EG-530 AD, 2B(R507)
M1	87-045-312-019	MOTOR, MMI652LK(F410)
S1	87-036-109-010	PUSH SW(CST)
S2	87-036-110-010	PUSH SW(CrO2)
S3	87-036-110-010	PUSH SW(RE-A)
S4	87-036-109-010	PUSH SW(RE-B)(R507)
S5	87-036-109-010	PUSH SW(MT)
S6	87-036-109-010	PUSH SW(DIR)(R507)
SOL1	86-535-611-210	SOLENOID, X-3 PL(PLAY)
SOL2	86-535-612-210	SOLENOID, X-3 FR(F/R)
		===SENSOR CIRCUIT BOARD SECTION(R507 ONLY)===
CP1	87-001-367-019	PHOTO SENSOR SP1-315-CD
		===RELAY CIRCUIT BOARD SECTION(R507 ONLY)===
		===MISCELLANEOUS===
⚠	87-034-749-019	AC CORD ⟨H⟩ W/PLUG(F410, H)
⚠	82-187-797-019	AC CORD ⟨E⟩ (F410, E, Z)
⚠	87-034-583-019	AC CORD ASSY U (R507, U)
⚠	82-187-796-019	AC CORD ⟨BS⟩ (F410, K)
⚠	87-085-185-010	BUSHING, AC CORD E (F410, E, Z)
⚠	87-085-184-010	BUSHING, AC CORD D (F410, H, R507, U)
⚠	87-085-189-010	BUSHING, CORD U (F410, K)
C1	★87-010-381-019	CAP, ELECT 330-16V SME
EH	★87-046-196-019	E HEAD(F410)
RPEH	87-046-350-019	R.P.E HEAD(R507)
PH	87-046-343-019	R.P HEAD(F410)

BLOCK DIAGRAM



IC BLOCK DIAGRAM

IC,CXA1331S



E C B

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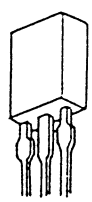
2SA1296

2SA952

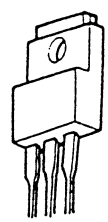
2SC1815

2SC2001



B C E

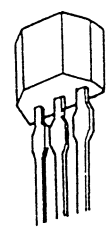
2SB1329



B C E

2SB1370

2SC3113



B C E

2SA933

2SC1740

DTA114

DTA144

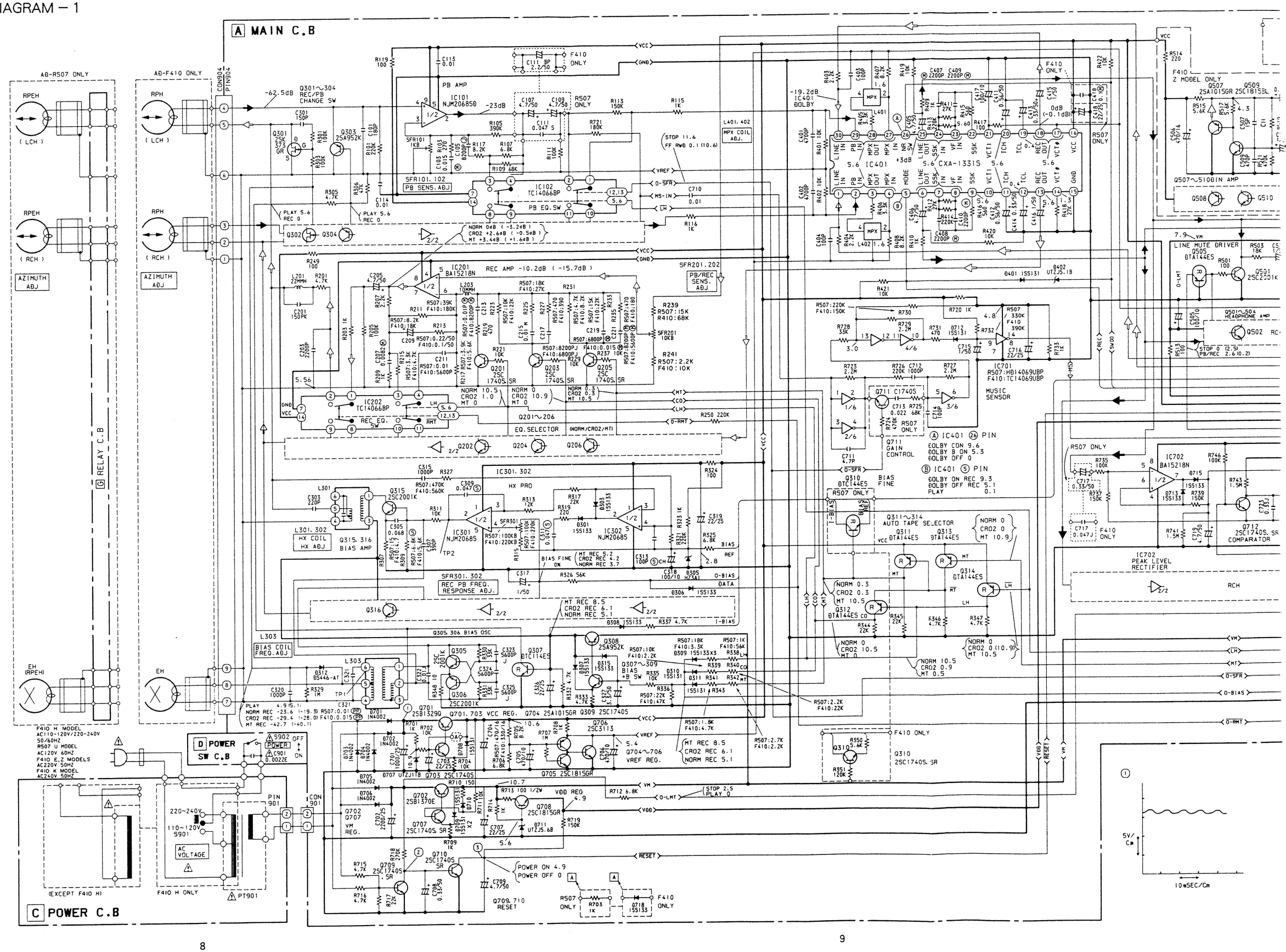
DTC114

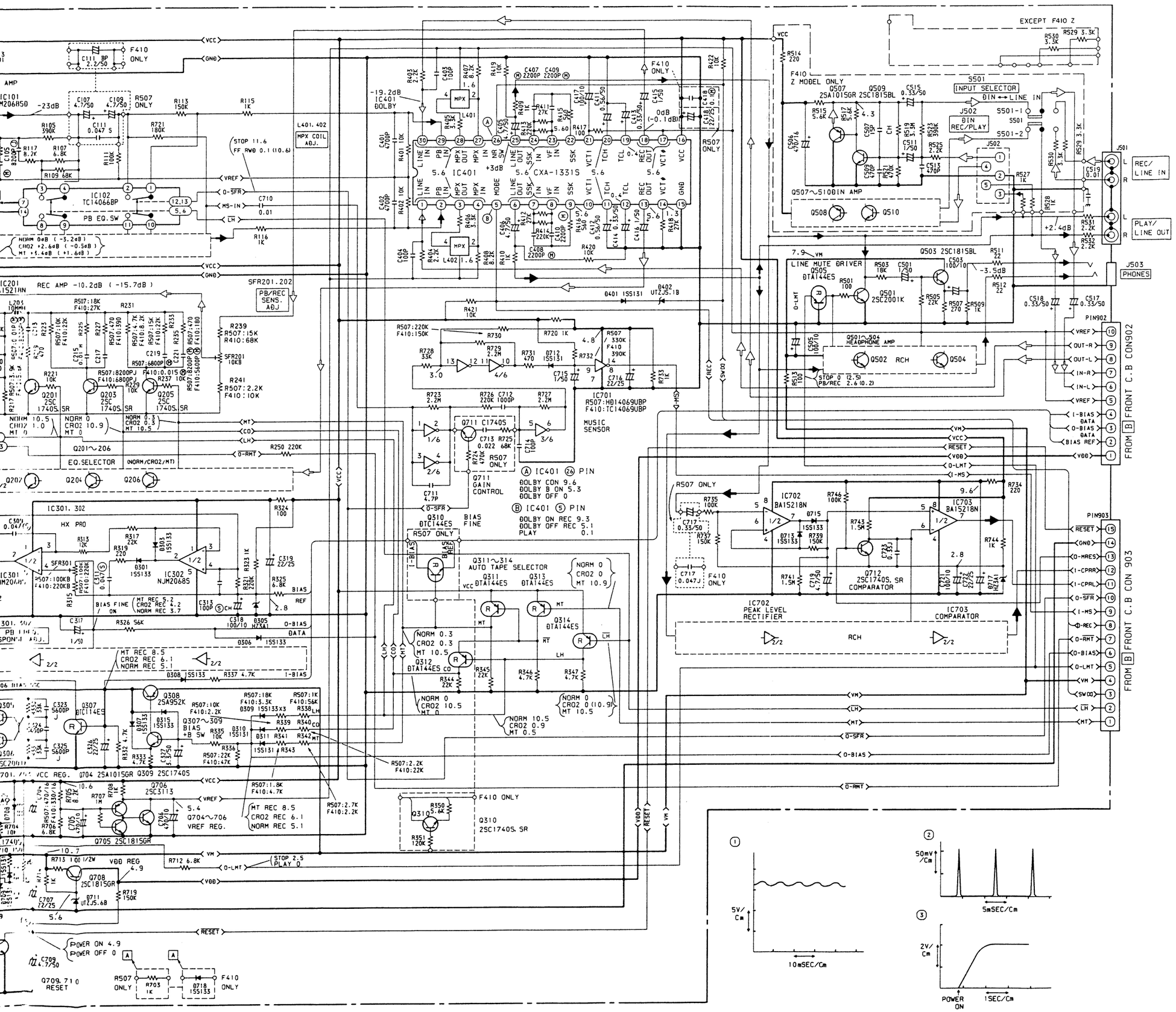
DTC144

S G D

2SK373

SCHEMATIC DIAGRAM – 1




VCC
GND
F410 ONLY
C111 BP 2.2/50
AMP
IC101 M206A50
-23dB
C107 4.7/50
C109 4.7/50
R507 ONLY
R113 150K
R115 1K
L401, 402 MPX COIL ADJ.
R105 390K
C111 0.047 S
R721 180K
STOP 11.6
FF RW0 0.1 (10.6)
R117 8.2K
R107 6.8K
R111 100K
R109 68K
VREF
IC102 TC14066BP
PB EQ.SW
O-SFR
MS-IN
C710 0.01
LH
R116 1K
NORM 0dB (-3.2dB)
CRO2 +2.6dB (-0.5dB)
MT +5.4dB (+1.6dB)
IC201 NJM2068M
REC AMP -10.2dB (-15.7dB)
SFR201.202
PB/REC SENS. ADJ
L201 10MMH
R507:18K F410:27K
R231
R239 R507:15K R410:68K
SFR201 10KB
R241 R507:2.2K F410:10K
R507:6800P
R507:8200P F410:0.015
R507:8200P F410:5600P
Q201 2SC 1740S SR
Q203 2SC 1740S SR
Q205 2SC 1740S SR
NORM 10.5
CRO2 1.0
MT 0
NORM 0
CRO2 10.9
MT 0
NORM 0.3
CRO2 0.3
MT 10.5
MT
CO
LH
O-RMT
R250 220K
EQ.SELECTOR
(NORM/CRO2/MT)
Q207
Q204
Q206
IC301, 302
HX PRO
R324 100
R313 12K
R317 22K
R319 220
D303 1SS133
D301 1SS133
IC302 NJM2068S
SFR301
R507:100KB F410:220KB
C311 0.047
R323 1K
R325 6.8K
BIAS REF
2.8
BIAS FINE / ON
MT REC 5.2
CRO2 REC 4.2
NORM REC 3.7
C313 100P
CH
C318 100/10
D305 HZ5A1
O-BIAS DATA
C317
R326 56K
D306 1SS133
MT REC 8.5
CRO2 REC 6.1
NORM REC 5.1
D308 1SS133
R337 4.7K
I-BIAS
Q308 2SA952K
R507:10K F410:2.2K
Q307 DTC114ES
Q307~309 BIAS +B SW
R507:18K F410:3.3K
R507:1K F410:56K
D309 1SS133×3
R338 LH
R339
R340 CO
D310 1SS131
R335 10K
D311 1SS131
R341
R342 MT
1SS131 R343
R336
R507:22K F410:47K
R507:2.2K F410:22K
C323 5600P J
C324 470P
C325 5600P J
C326 22/25
R332 4.7K
R333 4.7K
C327 1/50
VCC REG. Q704 2SA1015GR Q309 2SC1740S
10.6
R707 1M
R708 1M
Q706 2SC3113
VREF
5.4
Q704~706 VREF REG.
R507:1.8K F410:4.7K
MT REC 8.5
CRO2 REC 6.1
NORM REC 5.1
R507:2.7K F410:2.2K
Q705 2SC1815GR
10.7
R713 100 1/2W
V00 REG
4.9
Q708 2SC1815GR
R712 6.8K
VM
O-LMT
STOP 2.5
PLAY 0
V00
R719 150K
Q711 UTZ5.6B
C707 22/25
5.6
RESET
POWER ON 4.9
POWER OFF 0
C709 4.7/50
Q709, 710 RESET
R507 ONLY
R703 1K
D718 1SS133
F410 ONLY
-19.2dB IC401 DOLBY
C403 100P
R402 1.6
R419 10K
C407 C409 Ø2200P Ø2200P Ⓜ
F410 ONLY
C417 0.047
C411 0.56/50
C415 1/50
C418 22/25
C419 0.01
0dB (-0.1dB)
R422 1K
R403 2.2K
MPX
L401
R409 1K
R411 27K
R415 5.60
R417 100
C405 470P
R405 3.3K
R407 220K
C401 470P
R401 10K
C402 470P
R402 10K
LINE IN
PB IN
MPX OUT
MPX IN
NR SW
LINE OUT
SSK IN
VF IN
SSK
VCT1
TCH
TCL
REC OUT
VCT2
VCC
5.6 IC401 +3dB 5.6 CXA-1331S 5.6 5.6
MODE
GND
C404 100P
R404 2.2K
L402 1.6
R408 8.2K
R410 1K
C406 4.7/50
R412 27K
R414 220K
C410 Ø2200P
C408 Ø2200P Ⓜ
R420 10K
R416 5.6 560
C412 0.33/50
C414 0.33/50
C416 1/50
R418 27K
+0.6
1.3
R507 ONLY
Ø401 1SS131
Ø402 UTZ5.1B
R421 10K
R507:220K F410:150K
R730
R720 1K
R728 33K
R729 2.2M
R731 470
D712 1SS131
R732
R507 330K F410 390K
4.8
3.0
4/6
C715 1/50
C716 22/25
R733 1K
IC701 R507:HD14069UBP F410:TC14069UBP
MUSIC SENSOR
R723 2.2M
R726 C712 220K 1000P
R727 2.2M
Q711 C1740S
C713 0.022 68K
R725
C714 100P
R724 470K
R507 ONLY
1/6
3/6
2/6
C711 4.7P
O-SFR
Q711 GAIN CONTROL
Ⓐ IC401 26 PIN
ØOLBY CON 9.6
ØOLBY B ON 5.3
ØOLBY OFF 0
Ⓑ IC401 5 PIN
ØOLBY ON REC 9.3
ØOLBY OFF REC 5.1
PLAY 0.1
Q510 DTC144ES
R507 ONLY
BIAS FINE
I-BIAS
BIAS REF
Q311~314 AUTO TAPE SELECTOR
Q311 DTA144ES
Q313 DTA144ES
NORM 0
CRO2 0
MT 10.9
Q314 DTA144ES
Q312 DTA144ES CO
NORM 0.3
CRO2 0.3
MT 10.5
R345 1.2K
R346 4.7K
R347 4.7K
NORM 0
CRO2 10.5
MT 0
NORM 10.5
CRO2 0.9
MT 0.5
NORM 0
CRO2 0 (10.9)
MT 10.5
F410 ONLY
Q310 2SC1740S SR
R350 5.6K
Q310
R351 120K
VCC
R514 220
EXCEPT F410 Z
R530 3.3K
R529 3.3K
F410 Z MODEL ONLY
Q507 2SA1015GR
Q509 2SC1815BL
C515 0.33/50
S501 INPUT SELECTOR
ØIN ↔ LINE IN
J502 ØIN REC/PLAY
S501-1
S501-2
R515 5.6K
R517 5.6K
4.3
C506 470/16
C507 15P
CH
R519 3.3M
R523 330K
C511 1/50
R525 2.2K
C509 470P
R521 470K
C513 470P
J502
R527 1K
R530 3.3K
R529 3.3K
J501
L
R
REC/ LINE IN
C519 0.01
R528 1K
+2.4dB
R531 2.2K
R532 2.2K
PLAY/ LINE OUT
Q507~5100IN AMP
Q508
Q510
7.9
VM
Q503 2SC1815BL
LINE MUTE DRIVER
Q505 DTA144ES
R503 18K
C501 1/50
C503 100/10
R511 22
-3.5dB
R512 22
J503 PHONES
R501 100
Q501 2SC2001K
R505 22K
R507 270
R509 1K
C518 0.33/50
C517 0.33/50
O-LMT
Q501~504 HEADPHONE AMP
C505 100/10
Q502 RCH
Q504
R502 R504
STOP 0 (2.5)
PB/REC 2.6 (0.2)
PIN902
VREF
OUT-R
OUT-L
IN-R
IN-L
VREF
I-BIAS DATA
O-BIAS DATA
BIAS REF
V00
FROM B FRONT C.B CON902
REC
SW00
MS
R507 ONLY
IC702 BA15218N
R735 100K
R746 100K
C717 0.33/50
R737 150K
0715 1SS133
0713 1SS133
R739 150K
IC703 BA15218N
R734 220
9.6
R743 1.5K
R744 1K
2.8
C717 0.047J
F410 ONLY
R741 1.5K
C719 1/50
Q712 2SC1740S SR COMPARATOR
C721 100/10
C722 22/25
C723 0.33J
IC702 PEAK LEVEL RECTIFIER
IC703 COMPARATOR
1/2
RCH
PIN903
RESET
GND
O-MRES
I-CPRR
I-CPRL
O-SFR
I-MS
O-REC
O-RMT
O-BIAS
O-LMT
VM
SW00
LH
MT
FROM B FRONT C.B CON 903
VM
LH
MT
O-SFR
O-BIAS
O-RMT
VDD
RESET
VM
① 5V/Cm 10mSEC/Cm
② 50mv/Cm 5mSEC/Cm
③ 2V/Cm POWER ON 1SEC/Cm

A MAIN C.B

REC/ LINE IN J501 L R
PLAY/ LINE OUT J501 L R
S501 INPUT SELECTOR LINE IN ⇔ DIN
J501 DIN REC/PLAY
F410 Z ONLY

EXCEPT F410-Z
F410 Z ONLY
R507 ONLY
F410 ONLY

IC401 IC102 IC201 IC202 IC301 IC302 IC702 IC703
L401 L402 L201 L202 L203 L204 L301 L302 L303
SFR101 SFR102 SFR201 SFR202 SFR301 SFR302
TP1 TP2 TP3

CON901 PIN901 FROM C POWER C.B
CON904 PIN904 FROM HEAD
PIN902 To B FRONT C.B CON902
PIN903 To B FRONT C.B CON903
J503 PHONES

R507 ONLY
RPEH
AZIMUTH ADJ
G RELAY C.B
BLK BLU YEL WHT BRN RED
WHT PNK PNK PNK WHT WHT PNK
GRY BRN BLK
PNK WHT WHT WHT PNK WHT PNK
CON904
To A MAIN C.B PIN904

F410 ONLY
EH RPH
AZIMUTH ADJ
PNK WHT PNK WHT PNK WHT
BLK BRN GRY
PNK WHT PNK WHT PNK WHT
9 7 5 3 1
CON904
To A MAIN C.B PIN904

GRAPHIC SYMBOLS PRINTED CIRCUIT BOARD OF ELECT. CAP. ARE DESIGNED AS NEGATIVE POLE.

(プリント基板内のケミコンの極性表示はθ表示です。)

B FRONT C.B

REC LEVEL

VR801 50KA

VR802 200KΩ

VR802 REC BALANCE

VR803 BIAS FINE

CON902

TO A MAIN C.B PIN902

VREF
OUT-R
OUT-L
IN-R
IN-L
VREF
I-BIAS DATA
O-BIAS DATA
BIAS REF
VDD

CON903

TO A MAIN C.B PIN903

RESET
GND
O-MRES
I-CPRR
I-CPRL
O-SFR
I-MS
O-REC
O-RMT
O-BIAS
O-LMT
VM
SW 00
LH
MT

DOLBY NR
S810 DOLBY SWITCH
C OFF B

DOLBY C
DOLBY B

DOLBY C ON 9.6
DOLBY B ON 5.4
DOLBY OFF 0

SLB-55MG
SLB-55VR

8 POINT PEAK LEVEL METER

LED801	LED803	LED805	LED807	LED809	LED811	LED813	LED815
LED802	LED804	LED806	LED808	LED810	LED812	LED814	LED816
∞	-20	-10	-5	0	3	6	10

LED801 ~ 810
SLB-25MG X 10

LED811 ~ 816.
SLB-25VR X 6

LED819, 820
SLB-55MG X 2

LED821, 822
SLZ3814C05 X 2

LED DRIVER Q809 DTA114YS

PLAY/REPEAT
TIMER
OFF-REC

R507 ONLY

LED823
SLZ981C50

LED824
SLZ481C50

REVERSE MODE

PAUSE

VM
VDD
GND

ON REC 9.8
OFF REC 5.5
PLAY 0.1

R507 ONLY

Q806~808 QUICK

Q806 2SA933S R5
Q807 2SA933S R5
Q808 2SC1740S

LC6554H-4489

IC801 SYSTEM CONTROLLER

I-QUICK
I-REEL
I-SW CST
I-SW CO
I-SW REA
I-SW REB
I-SW MT
I-SW DIR
I-REMOTE (PU)
I-KRES
O-RMTR
O-LMT
O-BIAS
O-CMTR
O-RMT
O-REC
KSO
KSI
DISP
I-RVS (PU)
TEST
VSS
OSCI
OSC2

L'INITIAL

IC802 GP1U501 REMOTE SENSOR

R507 MODEL ONLY

X801 CRYSTAL OSC CST4.0MHZ

C808 1000P

F SENSOR C.B
CP1
SP1-315-C0

E DECK C.B

R507 ONLY

PIN801
R507
F410
PIN801

S6 DIR
S5 MT
S4 REB
S3 REA
QUICK
LH
S2 CST
S1 I-REEL
GND
V-CM
S-PLY
S-FR

IC1 LB9051A

M1
C1 330/16
M1 (SFR INSIDE MOTOR)
TAPE SPEED ADJ

SOL1
SOL2

Q801 2SA952K
Q802 2SA952K

2.7 (FF. REW. MS)
2.7 (PLAY. MS)

Q803 2SA1296GR

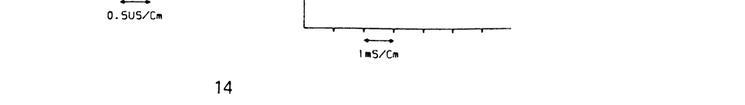
STOP 0.8
PLAY. OFF
REW. MS 10.8

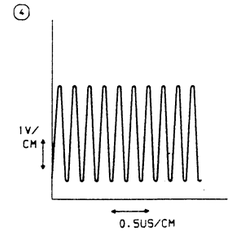
Q801 SOL (F/R) DRIVER
Q802 SOL (PLAY) DRIVER
Q803 CAPSTAN MOTOR DRIVER

S6 DIRECTION
S5 METAL
S4 RE B
S3 RE A
S2 CRO2
S1 CASSETTE

4.9

5.5





B FRONT C.B

R507 U ONLY
IC802
REMOTE SENSOR

DOLBY NR
LED818 C
LED817 B

S810
DOLBY NR
C ↔ OFF ↔ B

DIRECTION
LED820 ▶
LED819 ◀

S809
REVERSE MODE
R507 ONLY

S808
TIMER
REC ↔ OFF ↔ PLAY/REPEAT

PEAK HOLD METER

L	LED815	LED813	LED811	LED809	LED807	LED805	LED803	LED801
R	LED816	LED814	LED812	LED810	LED808	LED806	LED804	LED802
dB	+10	6	3	0	5	10	20	−∞

VR801 REC LEVEL
VR802 REC BALANCE
VR803 BIAS FINE

D POWER SW C.B

S902 POWER OFF ↕ ON

R507 ONLY

FROM B FRONT C.B
CON902
CON903
PIN902 FROM A MAIN C.B
PIN903 FROM A MAIN C.B

LED824 S805 PAUSE
S804 MS ▶▶
F410 ONLY
LED822 S803 FWD ▶
LED822 S803 ▶PLAY
LED821 S802 ◀REV
S807 ■ STOP
S801 ◀◀ MS
S806 ● REC / ○ REC MUTE

CON801 To E DECK C.B PIN801

R507 ONLY

E DECK C.B

SOL 2 (F/R)
S4 (RE B)
S2 (CrO2)
S6 (DIR)
FROM B FRONT C.B
CON801
PIN801
S1 (CST)
S5 (MT)
S3 (RE A)
SOL 1 (PLAY)

F SENSOR C.B

M1
C1
R1
IC 1
(WHT)
(RED)
SPEED ADJ.
CP 1 (PHOTO SENSOR)

F410 ONLY

E DECK C.B

SOL 2 (F/R)
S2 (CrO2)
FROM B FRONT C.B
CON801
PIN801
S1 (CST)
S5 (MT)
S3 (RE A)
SOL 1 (PLAY)
IC 1
SPEED ADJ
M1
C1
(WHT)

S901 AC VOLTAGE
220 – 240V
110 – 120V

※1 F410 H, R507 U: BLK
F410 E, K, Z: BLU
※2 F410 H, R507 U: BLK
F410 E, K, Z: BRN

F410 H MODEL
AC 110–120V/220–240V 50/60Hz
R507 U MODEL
AC 120V 60Hz
F410 E, Z MODELS
AC 220V 50Hz
F410 K MODEL
AC 240V 50Hz

F410 H MODEL

T.F
PT901
(EXCEPT F410 H)

CON901
To A MAIN C.B PIN901
(WHT)
(RED)

C POWER C.B

GRAPHIC SYMBOLS PRINTED CIRCUIT BOARD OF ELECT. CAP. ARE DESIGNED AS NEGATIVE POLE.

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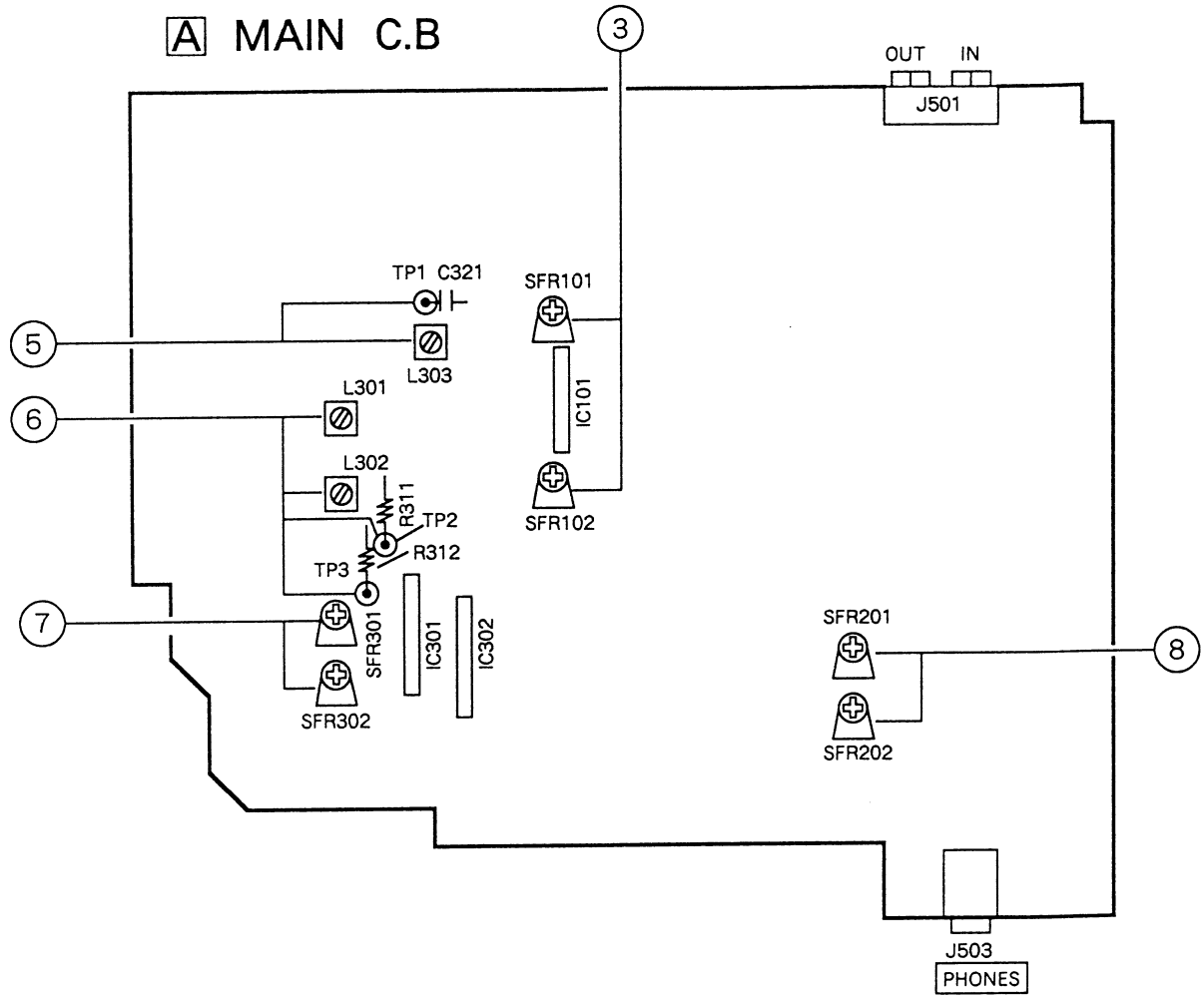
ADJUSTMENT



Initial Settings
1. REC LEVEL : MAX
2. BIAS FINE : Center click position
3. REC BALANCE : Center click position
4. REC CALIBRATION : Center click position
5. DOLBY NR SW : OFF
6. TIMER SW : OFF

1. Tape Speed Adjustment
   Settings : • Test tape : TTA – 100 (TTA – 111S)
   • Test point : LINE OUT jack
   • Adjustment Location : SFR inside motor
   Method : Play back the test tape, adjust for 3000 Hz.

2. Head Azimuth Adjustment
   Settings : • Test tape : TTS – 310 (TTA – 317E, SCC – 1429)
   • Test point : LINE OUT jack
   • Adjustment Location : Head azimuth adjustment screw
   Method : Play back the 10 kHz signal of the test tape and adjust so that the output becomes maximum.

3. PB Sensitivity Adjustment
   Settings : • Test tape : TTS – 200 (TTA – 161, TCC – 130)
   • Test point : LINE OUT jack
   • Adjustment Location : SFR101 (L ch)
   SFR102 (R ch)
   Method : Play back the test tape and adjust so that the output level is 500 mV.

4. PB Frequency Response Check
   Settings : • Test tape : TTS – 310 (TTA – 317E, SCC – 1429)
   • Test point : LINE OUT jack
   Method : Play back the 315 Hz and 10 kHz signals of the test tape and check the output of the 10 kHz signal is 0 dB ± 2.5 dB with respect to that of the 315 Hz signal.

5. Bias Frequency Adjustment
   Settings : • Test tape : TTA – 620 (TTA – 119MP)
   • Test point : TP1
   • Adjustment Location : L303
   Method : Set to the record mode and adjust so that the frequency counter reads 85 kHz.

6. HX Offset Adjustment (R507 ONLY)

Settings : • Test tape : TTA – 620 (TTA – 119MP)
• Test point : TP2 (L ch), TP3 (R ch)
• Adjustment Location : L301 (L ch)
L302 (R ch)

Method : Set to the record mode and adjust so that the bias voltage leaking to the test point is minimum level.

7. REC/PB Frequency Response Adjustment

Settings : • Test tape : TTA – 600 (TTA – 119K)
• Test point : LINE OUT jack
• Input signal : 1 kHz/10 kHz (LINE IN)
• Adjustment Location : SFR301 (L ch)
SFR302 (R ch)

Method : Apply a 1 kHz signal and adjust attenuator so that the output level at the LINE OUT jack is 35 mV.
Record and play back the 1 kHz and 10 kHz signals and adjust so that the output of the 10 kHz signal is – 0.5 dB with respect to that of the 1 kHz signal.

Rated : CrO2 : 0 ± 2.0 dB
METAL : 0 ± 2.0 dB

8. REC/PB Sensitivity Adjustment

Settings : • Test tape : TTA – 600 (TTA – 119K)
• Test point : LINE OUT jack
• Adjustment Location : SFR201 (L ch)
SFR202 (R ch)

Method : Apply a 1 kHz signal and adjust attenuator so that the output level at the LINE OUT jack is 35 mV.
Record and play back the 1 kHz signal and adjust so that the output is – 0.5 dB.

Rated : CrO2 : 0 ± 1.0 dB
METAL : 0 ± 1.0 dB

PRACTICAL SERVICE FIGURE

PB output level :	500 mV ± 40 mV (LINE OUT) (R507)
	470 mV ± 50 mV (LINE OUT) (F410)
REC/PB output level :	0VU ± 2.0 dB (LINE OUT) (R507)
	0VU ± 1.0 dB (LINE OUT) (F410)
Distortion (REC/PB) :	Less than 2.0 %
	(NORM., CrO2, MT)
Erasing ratio :	More than 60 dB
Crosstalk :	More than 60 dB
Channel separation :	More than 35 dB (R507)
	More than 40 dB (F410)
Noise (PB) : (R507)	Less than 4.3/1.6/1.2 mV
(LINEAR)	(DOLBY OFF/B/C NORM.)
	Less than 2.9/1.3/1.0 mV
	(DOLBY OFF/B/C CrO2, MT)
(F410) (LINEAR)	Less than 4.0/2.2/2.0 mV
	(DOLBY OFF/B/C NORM.)
	Less than 3.0/2.0/1.8 mV
	(DOLBY OFF/B/C CrO2, MT)
Noise (REC/PB) :	Less than 4.3/2.1/1.7 mV
(F410) (LINEAR)	(DOLBY OFF/B/C NORM.)
	Less than 3.4/1.7/1.7 mV
	(DOLBY OFF/B/C CrO2, MT)
PB/REC S/N ratio :	More than 34/44/47 dB
(R507) (LINEAR)	(DOLBY OFF/B/C NORM.)
	More than 40/46/48 dB
	(DOLBY OFF/B/C CrO2)
	More than 40/47/48 dB
	(DOLBY OFF/B/C MT)
Recording bias frequency :	85 kHz
Tape speed :	3000 Hz ± 1.5 %
Wow & flutter (W.RMS) :	Less than 0.08 % (R507)
	Less than 0.055 % (F410)
Take – up torque :	30~50 g-cm
F.F & REW torque :	120 ± 30 g-cm
Back tension :	2~5 g-cm
Test tape :	NORMAL : TTA – 600
	(TTA – 119K)
	CrO2 : TTA – 610 (TTA – 119H)
	METAL : TTA – 620
	(TTA – 119MP)

IC DESCRIPTION

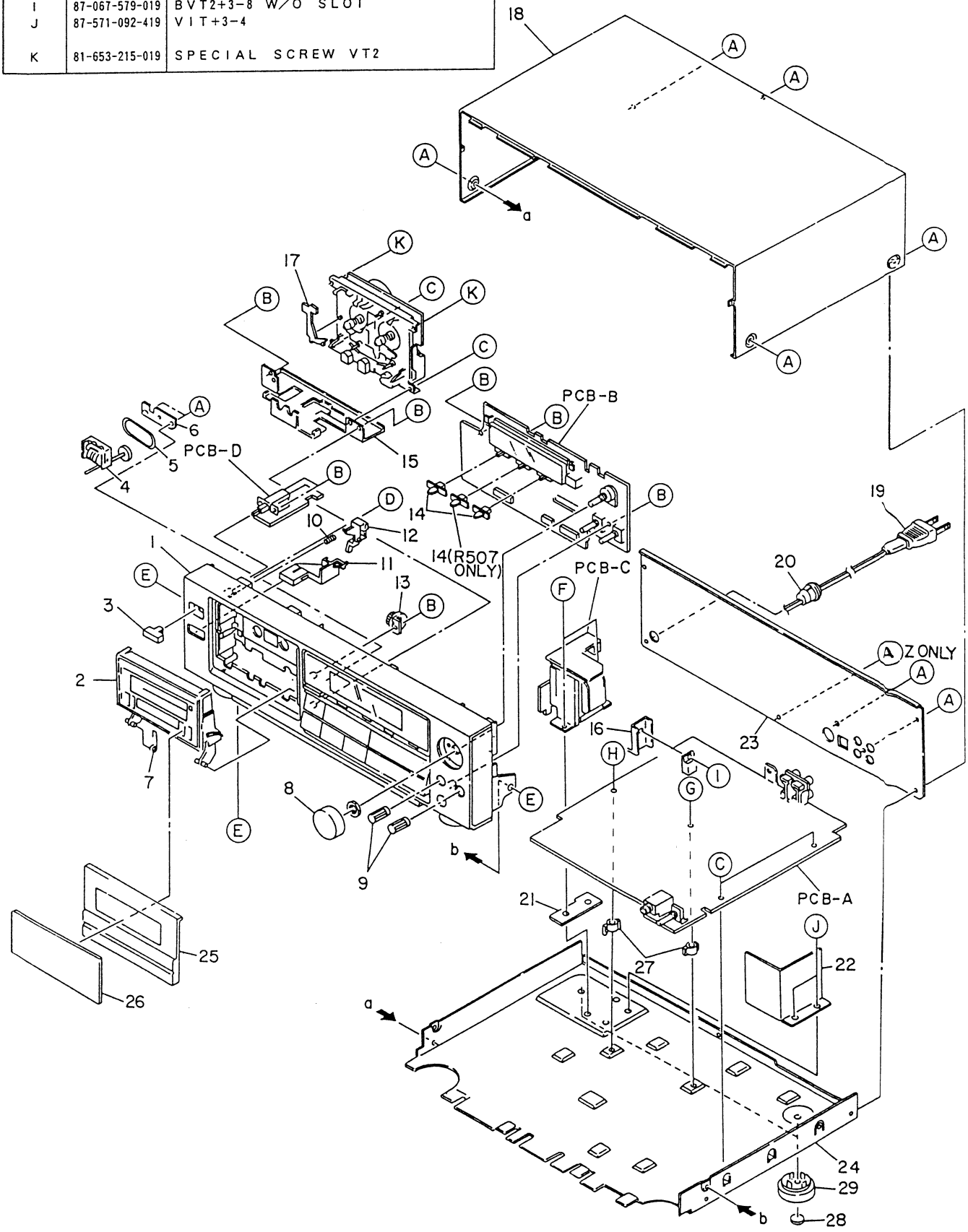
IC,LC6554H-4489

Pin No.	Pin Name	I/O	Description
1	LED-R2	O	Level meter LED display output (Rch -5 dB). active "H"
2, 3	LED-R1	O	Level meter LED display output (Rch -10 dB). active "H"
4	LED-R0	O	Level meter LED display output (Rch -20 dB). active "H"
5	LED-L2	O	Level meter LED display output (Lch -5 dB). active "H"
6, 7	LED-L1	O	Level meter LED display output (Lch -10 dB). active "H"
8	LED-L0	O	Level meter LED display output (Lch -20 dB). active "H"
9	NC	-	Not used.
10	I-QUICK	I	QUICK reverse detection input. "H" input during quick reverse. (AD-R505 only).
11	I-REEL	I	Reel path detection input.
12	I-$\overline{\text{SW CST}}$	I	Cassette detection switch. "L" when a cassette is loaded.
13	I-$\overline{\text{SW CO}}$	I	CrO_2 hole detection switch. "H" when cassette uses CrO_2 tape. (Connected to GND)
14	I-$\overline{\text{SW REA}}$	I	Erasure prevention detection switch for side A. "L" when side A is recordable.
15	I-$\overline{\text{SW REB}}$	I	Erasure prevention detection switch for side B. "L" when side B is recordable.
16	I-$\overline{\text{SW MT}}$	I	Metal hole detection switch. "H" when cassette used metal tape. (Connected to GND)
17	I-$\overline{\text{SW DIR}}$	I	Direction detection switch. "L" for side A.
18	I-REMOTE	I	Remote control input.
19	I-KRES	I	Counter reset input. (Connected to GND)
20	O-$\overline{\text{RMTR}}$	O	Reel motor control output. "L" when reel motor is rotating.
21	O-LMT	O	Line mute output. "H" during muting. "L" in REV mode during recording.
22	O-BIAS	O	Bias oscillator control output. "L" in REV mode.
23	O-$\overline{\text{CMTR}}$	O	Capstan motor control output. "L" when capstan motor is rotating and the power is on for AUTO SENSOR/QUICK SENSOR.
24	O-$\overline{\text{RMT}}$	O	REC mute control output. "L" during muting. All "L" in other than REC PLAY mode.
25	O-REC	O	DOLBY IC record switch. "H" when recording.
26	$\overline{\text{KS0}}$	O	DATA0 - DATA6 KEY SCAN Output.
27	$\overline{\text{KS1}}$	O	
28	$\overline{\text{DISP}}$	O	DATA0 - DATA6 LED scan output.
29	I-$\overline{\text{RVS}}$	I	REVERSE mode input. "L" during REVERSE mode.
30	TEST	-	CPU test terminal. Connected to GND.
31	VSS	-	Connected to GND.
32	OSC1	-	4 MHz clock oscillator terminal.
33	OSC2	-	
34	$\overline{\text{RESET}}$	-	CPU reset terminal.
35	O-$\overline{\text{NOR}}$	O	Output for display indicating normal tapes. (Connected to GND)
36	O-$\overline{\text{CO}}$	O	Output for display indicating CrO_2 tapes. (Connected to GND)

Pin No.	Pin Name	I/O	Description		
37	O-$\overline{MT}$	O	Output for display indicating metal tapes. (Connected to GND)		
38	O-MRES	O	Output for 8-point peak meter.		
39	I-CPRR	I	Right channel peak meter input.		
40	I-CPRL	I	Left channel peak meter input.		
41	O-$\overline{SFRP}$	O	F/R solenoid control output. "L" when solenoid bar is drawn into coil.		
42	O-$\overline{SPLY}$	O	PLAY solenoid control output. "L" when solenoid bar is drawn into coil.		
43	I-MS	I	Music sensor detect input. "L" when music sensor is on.		
44	D0	O	$\overline{KS0}$	$\overline{KS1}$	$\overline{DISP}$
			———	SW ⇄ (AD-R507 only)	LED PAUSE
45	D1	O	———	———	———
46	D2	O	KEY PAUSE	SW ↻ (AD-R507 only)	LED REC/RMT
47	D3	O	KEY ▷▷	KEY STOP	LED PLAY-FWD
48	D4	O	KEY ▷	KEY REC/RMT	LED PLAY-REV (AD-R507 only)
49	D5	O	KEY ◁(AD-R507 only)	SW TIMER REC	LED ▷▷ (AD-R507 only)
50	D6	O	KEY◁◁	SW TIMER PLAY	LED ◁◁ (AD-R507 only)
51	-VP	-	Makes plate voltage connection for flourescent .		
52	LED-R6	O	Level meter LED display output (Rch +10 dB). active "H"		
53	LED-R5	O	Level meter LED display output (Rch +6 dB). active "H"		
54	LED-R4	O	Level meter LED display output (Rch +3 dB). active "H"		
55	NC	-	Not used.		
56	LED-L6	O	Level meter LED display output (Lch +10 dB). active "H"		
57	LED-L5	O	Level meter LED display output (Lch +6 dB). active "H"		
58	LED-L4	O	Level meter LED display output (Lch +3 dB). active "H"		
59	NC	-	Not used.		
60, 61	LED-R3	O	Level meter LED display output (Rch 0 dB). active "H"		
62, 63	LED-L3	O	Level meter LED display output (Lch 0 dB). active "H"		
64	VDD	-	CPU power supply terminal. (+5 V)		

EXPLODED VIEW – 1

REF. NO.	PART NO.	DESCRIPTION
A	87-067-660-019	BVT2+3-8 W/O SLOT (B)
B	87-067-703-019	BVT2+3-10 W/O SLOT
C	87-067-688-019	BVTT+3-6
D	87-661-096-419	VFT1+3-10
E	87-591-094-419	QIT+3-6
F	87-067-585-019	BVTT+4-6
G	87-067-776-019	BVT2+3-12 W CONVEX
H	87-067-758-019	BVT2+3-12 W/O SLOT
I	87-067-579-019	BVT2+3-8 W/O SLOT
J	87-571-092-419	VIT+3-4
K	81-653-215-019	SPECIAL SCREW VT2

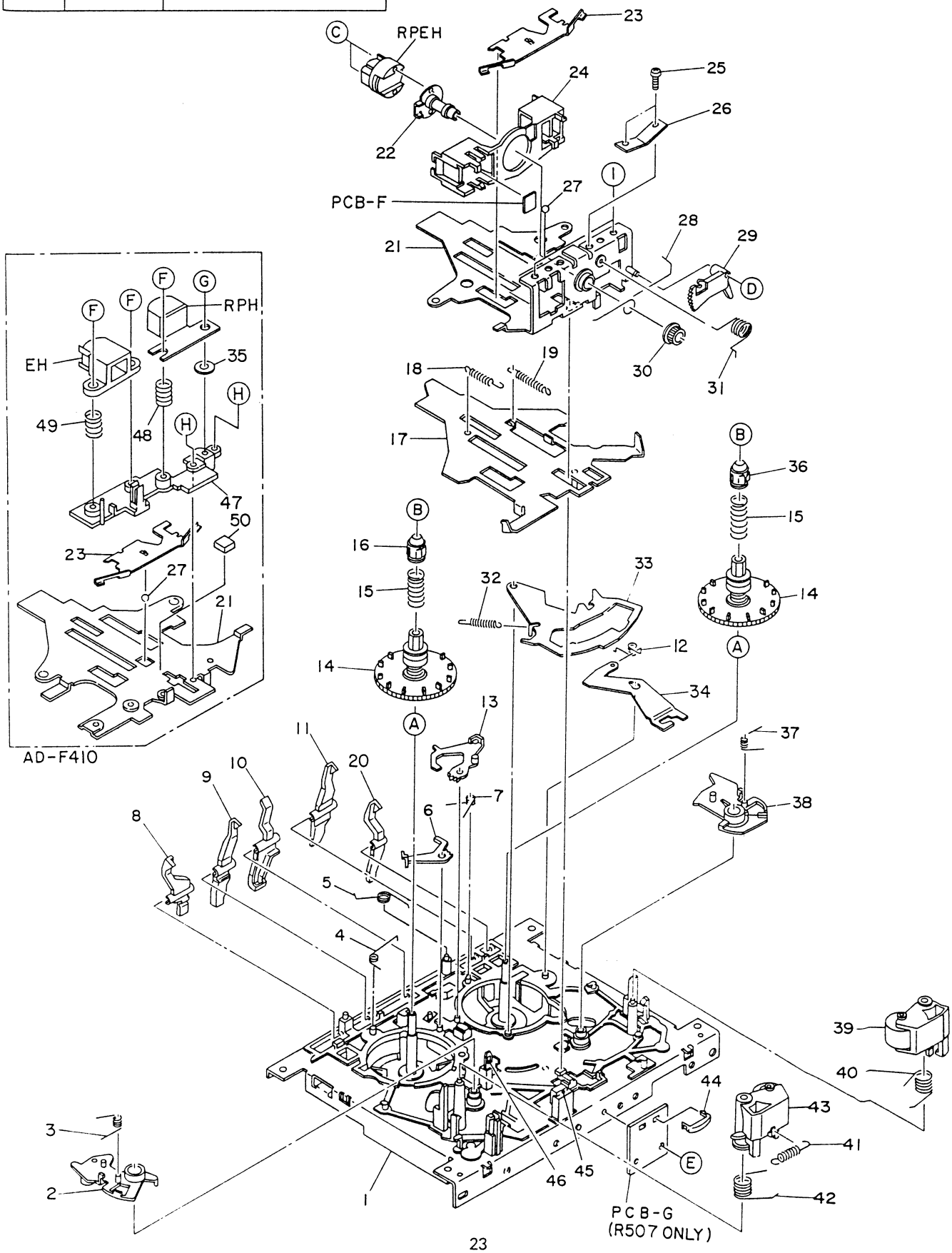


MECHANICAL PARTS LIST

PART NO. CHANGED TO	REF. NO.	PART NO.	DESCRIPTION	COMMON MODEL	Q'TY
	1-1	★09-047-665-010	FRONT CABINET ASSY (R507)	※	1
	1-1	★09-047-657-010	FRONT CABINET ASSY (F410)	※	1
	1-2	★09-047-509-010	CASSETTE BOX ASSY (R507)	※	1
	1-2	★09-047-508-010	CASSETTE BOX ASSY (F410)	※	1
	1-3	★84-721-023-010	BUTTON, POWER		1
	1-4	★87-040-199-010	COUNTER		1
	1-5	★80-DS4-202-010	BELT, SQ 0.8-199.6	※	1
	1-6	★82-205-208-010	HOLDER, COUNTER		1
	1-7	★80-DS3-202-019	T-SPRING, EJECT 1		1
	1-8	★82-235-014-119	KNOB, REC (R507)		1
	1-8	★81-DS2-021-010	KNOB, REC (F410)		1
	1-9	★80-DS3-007-019	KNOB, BIAS		2
	1-10	★80-DS3-209-019	C-SPRING, EJECT		1
	1-11	★84-793-011-010	BUTTON, EJECT		1
	1-12	★80-DS3-203-019	LEVER, EJECT		1
	1-13	★87-063-143-010	DAMPER, OIL 75		1
	1-14	★80-DW1-012-019	KNOB, SLIDE		3(R507) 2(F410)
	1-15	★80-DS3-204-019	PLATE, SHIELD		1
	1-16	---	HEAT SINK		1
	1-17	★82-235-204-010	LEVER, PROTECT		1
	1-18	★80-DS3-002-019	CABINET, STEEL		1
	1-19	★87-034-583-019	CORD, AC (R507)		1
	1-19	★87-034-749-019	CORD, AC (F410 H)		1
	1-19	★82-187-797-019	CORD, AC (F410 E, Z)		1
	1-19	★82-187-796-019	CORD, AC (F410 K)		1
	1-20	★87-085-184-010	BUSHING, AC (R507, F410 H)		1
	1-20	★87-085-185-010	BUSHING, AC (F410 E, Z)		1
	1-20	★87-085-189-010	BUSHING, AC (F410 K)		1
	1-21	★80-DW1-209-019	PLATE, PT		1
	1-22	★80-DS4-599-019	PLATE, SHIELD	※	1
	1-23	★80-DS4-017-019	PANEL, REAR (R507)	※	1
	1-23	★81-DS3-008-019	PANEL, REAR (F410 H)	※	1
	1-23	★81-DS3-010-019	PANEL, REAR (F410 E)	※	1
	1-23	★81-DS3-011-019	PANEL, REAR (F410 K)	※	1
	1-23	★81-DS3-013-019	PANEL, REAR (F410 Z)	※	1
	1-24	---	CHASSIS, MAIN		1
	1-25	★80-DS3-003-019	PANEL, CASSETTE		1
	1-26	★80-DS3-008-010	WINDOW, CASSETTE (R507)		1
	1-26	★81-DS3-003-010	WINDOW, CASSETTE (F410)	※	1
	1-27	★80-DS3-205-010	HOLDER, P.C.B 5.6		2
	1-28	★80-DS3-206-019	CUSHION, G DIA 15-1		2
	1-29	★80-DS3-014-119	FOOT, REAR ST (R507)		2
	1-29	★81-669-018-019	FOOT, REAR (F410)		2

EXPLODED VIEW – 2

REF. NO.	PART NO.	DESCRIPTION
A	87-067-470-010	PW4.1–6.9–0.13
B	86-524-418-019	VFT2+1.4–5
C	87-067-177-019	V+1.6–5.5
D	87-081-489-019	PW1.7–3.5–0.25
E	87-067-174-019	VTT+2–4
F	87-067-362-019	V+2–6.6
G	87-353-034-219	VT2+2–5
H	87-267-033-019	V+2–4 [B]
I	86-575-236-010	S–SCREW, TAPE ADJ

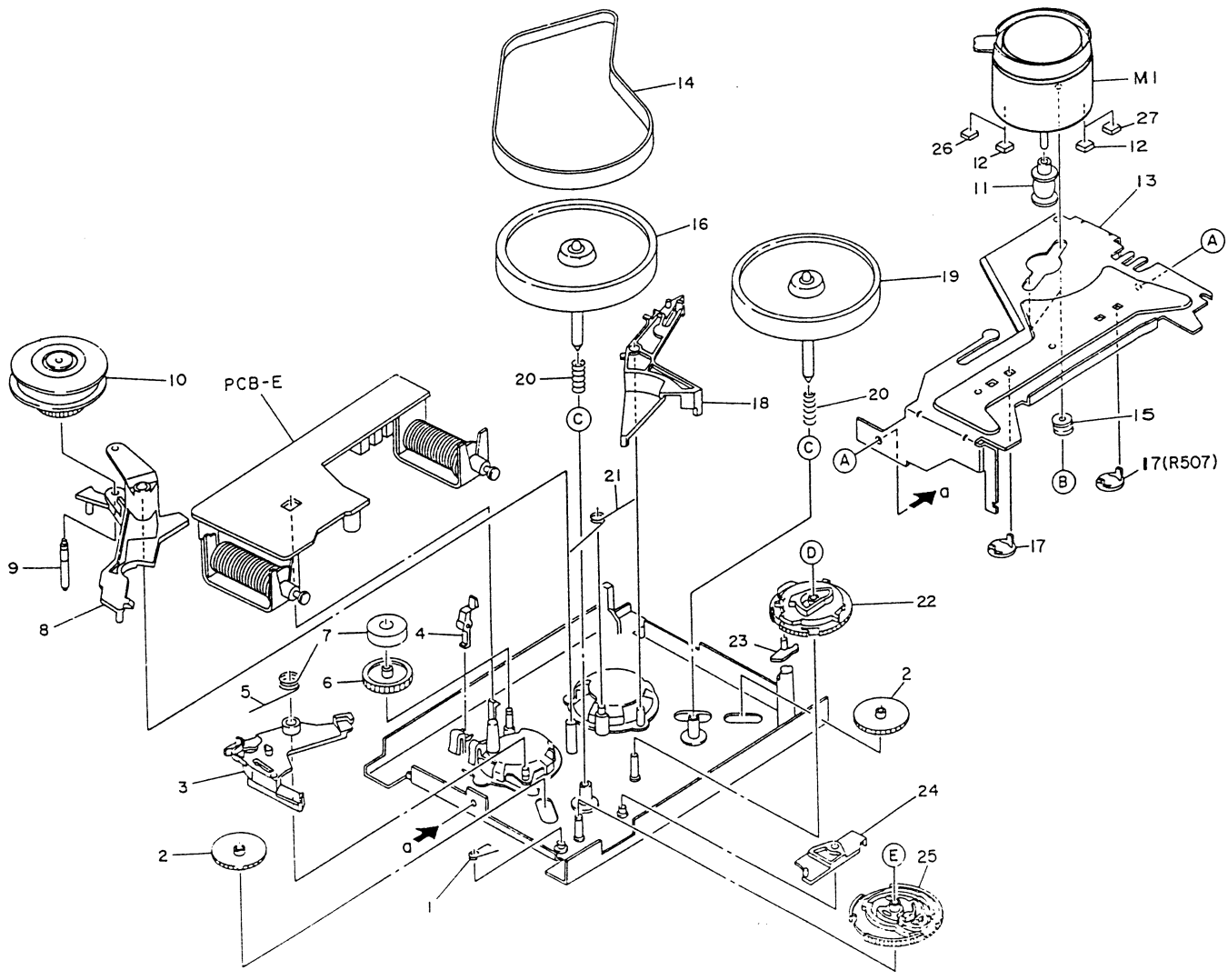


PART NO. CHANGED TO	REF. NO.	PART NO.	DESCRIPTION	COMMON MODEL	Q'TY
	2-1	★86-575-217-710	MECHANISM CHASSIS ASSY (R507)	※	1
	2-1	★86-575-239-610	MECHANISM S CHASSIS ASSY (F410)	※	1
	2-2	★86-535-239-110	LEVER,PLAY R (R507)		1
	2-3	★86-535-283-019	T-SPRING,PLAY GEAR R (R507)		1
	2-4	★86-575-351-010	T-SPRING,BRAKE RS	※	1
	2-5	★86-575-225-019	T-SPRING,CASSETTE	※	1
	2-6	★86-535-252-210	LEVER,BRAKE R		1
	2-7	★86-535-370-019	T-SPRING,BRAKE F		1
	2-8	★86-535-247-210	LEVER,REC GUARD A		1
	2-9	★86-535-250-110	LEVER,METAL		1
	2-10	★86-535-249-210	LEVER,CASSETTE SENSOR		1
	2-11	★86-535-254-110	LEVER,CR		1
	2-12	★86-535-277-010	T-SPRING,D SW (R507)		1
	2-13	★86-535-251-110	LEVER,BRAKE F		1
	2-14	★86-535-240-610	REEL TABLE R ASSY		2
	2-15	★86-535-293-019	C-SPRING,REEL TABLE		2
	2-16	★86-524-218-219	STOPPER,REEL TABLE S		1
	2-17	★86-535-215-310	SLIDE PLATE ASSY (R507)		1
	2-17	★86-535-385-210	SLIDE S PLATE ASSY (F410)		1
	2-18	★86-575-227-010	E-SPRING,LEVER SLIDE (R507)	※	1
	2-18	★86-535-285-119	E-SPRING,SLIDE (F410)		1
	2-19	★86-575-226-019	E-SPRING,CHASSIS HEAD (R507)	※	1
	2-19	★86-535-286-019	E-SPRING,OPERATION (F410)		1
	2-20	★86-535-248-310	LEVER,REC GUARD B (R507)		1
	2-21	★86-575-209-210	CHASSIS,HEAD S (R507)	※	1
	2-21	★86-535-311-410	CHASSIS,HEAD S (F410)		1
	2-22	★86-575-207-110	HOUSING HEAD ASSY (R507)	※	1
	2-23	★86-535-289-110	P-SPRING,HEAD CHASSIS		1
	2-24	★86-575-214-110	GUIDE,TAPE (R507)	※	1
	2-25	★86-575-235-019	SCREW,S AZIMUTH (R507)	※	2
	2-26	★86-524-300-119	P-SPRING,AZIMUTH (R507)		1
	2-27	★87-073-018-019	BALL,STEEL 1.588		1
	2-28	★86-575-240-010	T-SPRING,GUIDE (R507)	※	1
	2-29	★86-535-246-210	GEAR,SEGMENT (R507)		1
	2-30	★86-575-206-010	GEAR,HEAD FR (R507)	※	1
	2-31	★86-535-290-010	T-SPRING,SEGMENT GEAR (R507)		1
	2-32	★86-535-284-010	E-SPRING,DIRECTION LEVER (R507)		1
	2-33	★86-535-218-210	LEVER DIRECTION ASSY (R507)		1
	2-34	★86-575-219-010	LEVER,D SW (R507)	※	1
┌→	2-35	★86-535-387-010	MYLAR,W 2.3-5-0.188 (F410)		1
└→	2-35	★86-535-363-019	SHEET,MYLAR 2.3-5-0.1 (F410)		1
	2-36	★86-524-233-219	STOPPER,REEL TABLE T		1
	2-37	★86-535-282-019	T-SPRING,PLAY GEAR F		1
	2-38	★86-535-238-210	LEVER,PLAY F		1
	2-39	86-535-226-210	PINCH LEVER F ASSY		1
	2-40	★86-575-222-110	T-SPRING,PINCH F (R507)	※	1
	2-40	★86-535-312-010	T-SPRING,PINCH S (F410)		1
	2-41	★86-535-287-119	E-SPRING,PINCH (R507)		1
	2-42	★86-575-223-110	T-SPRING,PINCH R (R507)	※	1
	2-43	86-535-228-310	PINCH LEVER R ASSY (R507)		1
	2-44	---	HOLDER,WIRE (R507)		1
	2-45	★86-535-353-019	FELT,SQ 5-4-2		1
	2-46	★86-517-353-019	SHEET,QUICK (R507)		1
	2-47	★86-535-314-210	BASE,HEAD (F410)		1
	2-48	★86-535-359-010	C-SPRING,AZIMUTH S (F410)		1
	2-49	★86-575-321-010	C-SPRING,AZIMUTH S2 (F410)	※	1
	2-50	★86-575-360-019	CUSHION,G 3.8-3.8-2 (F410)	※	1

※The ┌→ marked parts are compatible with each other.

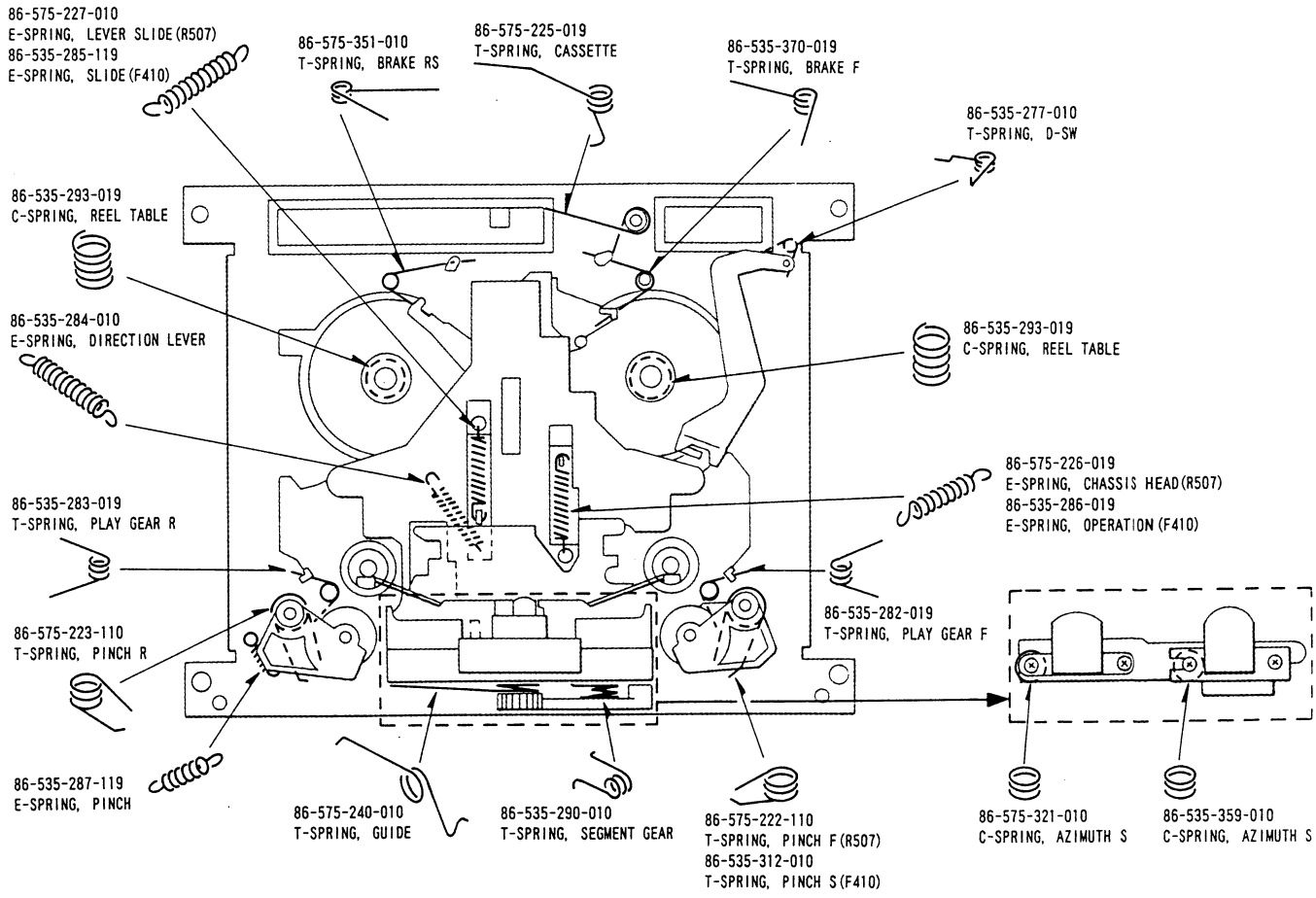
EXPLODED VIEW – 3

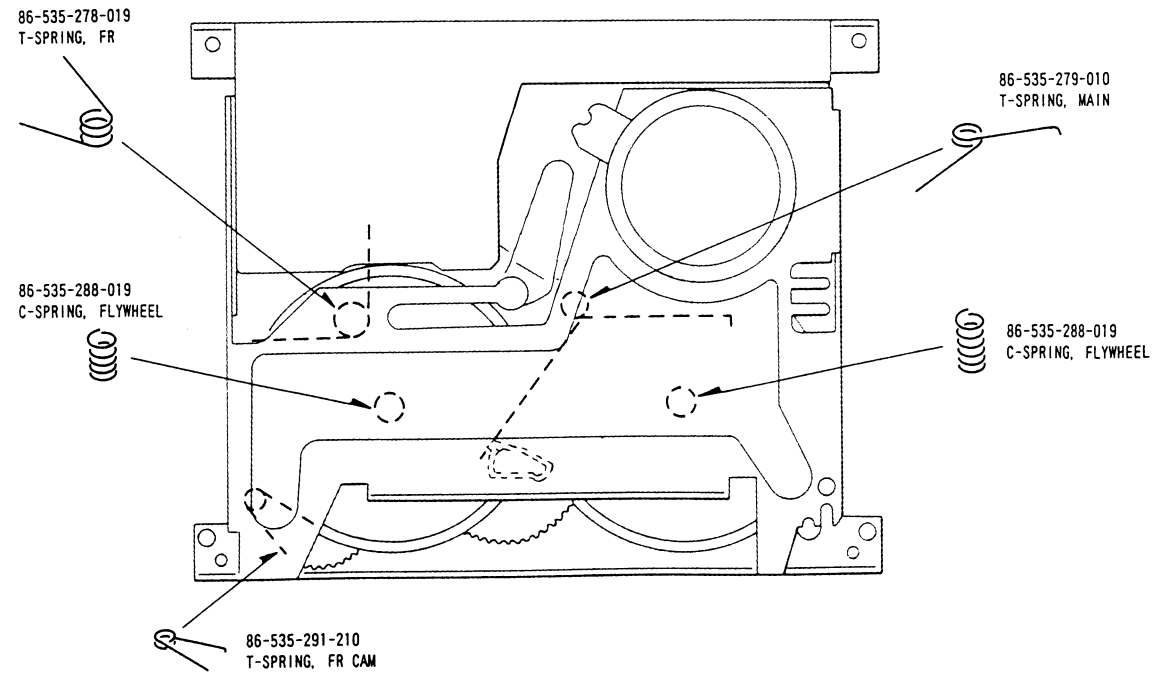
REF. NO.	PART NO.	DESCRIPTION
A	87-081-501-019	VTT+2.6–4
B	86-575-243-019	MOTOR SCREW
C	87-067-332-019	PW2.8–4.7–0.13
D	87-081-489-019	PW1.7–3.5–0.25
E	87-067-380-019	PW1.7–7–0.5



PART NO. CHANGED TO	REF. NO.	PART NO.	DESCRIPTION	COMMON MODEL	Q'TY
	3-1	★86-535-291-210	T-SPRING, FR CAM		1
	3-2	★86-535-259-310	GEAR, PLAY (R507)		2
	3-2	★86-575-221-210	GEAR, PLAY (F410)	※	1
	3-3	★86-535-230-510	LEVER, TRIGGER FR		1
	3-4	★86-535-253-210	LEVER, RINK (R507)		1
	3-5	★86-535-278-019	T-SPRING, FR		1
	3-6	★86-575-220-010	GEAR, IDLER	※	1
	3-7	★86-535-614-010	RING, MAGNET		1
	3-8	★86-535-233-210	LEVER, FR		1
	3-9	★86-535-235-010	SHAFT, FR		1
	3-10	★86-575-314-010	SLIP DISK ASSY	※	1
	3-11	★86-535-389-110	PULLEY, MOTOR C		1
	3-12	★86-575-261-110	CUSHION, G 5.5-1.5 (R507)	※	2
	3-13	★86-575-218-210	HOLDER, MOTOR	※	1
	3-14	★86-575-224-010	BELT, 2 (R507)	※	1
	3-14	★86-575-238-010	BELT, 3 (F410)	※	1
	3-15	★86-575-242-010	CUSHION, G DIAL 3.7-9-3.2	※	2
	3-16	★86-535-395-010	FLYWHEEL FD ASSY (F410)		1
	3-16	★86-575-203-110	FLYWHEEL F ASSY (R507)	※	1
	3-17	★86-535-255-010	RETAINER, FLYWHEEL		2(R507) 1(F410)
	3-18	★86-535-231-410	LEVER, TRIGGER PLAY		1
	3-19	★86-575-201-110	FLYWHEEL R ASSY (R507)	※	1
	3-20	★86-535-288-019	C-SPRING, FLYWHEEL		2(R507) 1(F410)
	3-21	★86-535-279-010	T-SPRING, MAIN		1
	3-22	★86-535-260-310	CAM, MAIN		1
	3-23	★86-535-308-110	LEVER, CHANGE (R507)		1
	3-24	★86-575-229-210	LEVER, PAUSE B (R507)	※	1
	3-24	★86-535-223-310	LEVER, PAUSE (F410)		1
	3-25	★86-535-261-410	CAM, FRP		1
	3-26	★86-575-597-010	CUSHION, G 6-6-2 (F410)		1
	3-27	★86-575-261-110	CUSHION, G 5.5-1.5 (F410)		1

SPRING APPLICATION POSITION





■ ACCESSORIES/PACKAGE LIST

PART NO. CHANGED TO	REF. NO.	PART NO.	DESCRIPTION	COMMON MODEL	Q,TY
	1	★80-DS4-906-019	INSTRUCTION BOOKLET,U (R507)	※	1
	2	★81-DS3-901-019	INSTRUCTION BOOKLET,EX (F410)	※	1
	3	★87-034-786-019	CORD PIN,189 – 0760		1
	4	★87-032-845-019	PLUG,CONVERSION (F410 HJ)		1
	5	★80-DS4-621-019	REMOTE UNIT,C – ASSY RC – R102 (R507)	※	1